UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/433,332	11/03/1999	JOHN E. DONOHUE	500.722US1	2416

21186 7590 07/03/2002

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

EXAMINER	
RYMAN, DANIEL J	
ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 07/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

HG

Office Action Summary	Application No.	Applicant(s)
	09/433,332	DONOHUE, JOHN E.
	Examiner	**Art Unit**
	Daniel J. Ryman	2665

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 12 February 2002 .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-29 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-29 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 03 November 1999 is/are: a)☒ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: on pg. 1 line 9 there is a serial number missing. This serial number should be 09/432,558.

Appropriate correction is required.

2. The disclosure is objected to because of the following informalities: on page 7 line 23 there is a reference made to a Fig. 3 but there is no Fig.3. The reference should cite Fig. 2.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claim 13 recites the limitation "frequency translator" in line 3. There is insufficient antecedent basis for this limitation in the claim. A frequency translator is cited in claim 1; however, claim 1 is not the independent claim that claim 13 depends upon.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claim 1, 2-4, 6, 9, 18, 20, 22, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dapper (USPN 6,282,683) in view of Hansen et al. (USPN 5,272,700) in further view of Vanbuskirk el al. (USPN 5,469,545).

8. Regarding claim 1, Dapper discloses a hybrid fiber coax network (col. 4 lines 58-59) comprising a head end (col. 4 line 59-col. 5 line 10); at least one optical distribution node coupled to the head end over at least one fiber optic link (col. 14 lines 22-25 and col. 120 lines 60-63); at least one coaxial cable link, coupled to the at least one optical distribution node, that receives upstream, digital data (col. 125 lines 9-10) from a plurality of modems (col. 125 lines 52-55); a laser transmitter coupled to the fiber optic link that transmits the upstream, digital data to the head end (col. 27 lines 35-36); a data concentrator (combiner) coupled to provide the upstream, digital data to the laser (col. 27 lines 29-38 and Fig. 5 reference 408); a frequency translator (frequency shifter) that receives and translates the upstream, digital data from the plurality of modems to a different carrier frequency (col. 27 lines 15-25 and Fig. 5 reference 64); and a process performed at the frequency translator to ensure that the upstream, digital data is valid (col. 28 lines 32-46 esp. lines 44-46). It should be noted that valid data is broadly interpreted to mean any data which can be properly interpreted by the system. Thus "unacceptable modifications of the...upstream signal by frequency shifters" (col. 28 lines 44-46) is interpreted to mean data which is not valid.

9. Even though Dapper discloses the use of collision detection (col. 63 lines 15-21), Dapper does not disclose that the frequency translator that receives and translates the upstream, digital data from the plurality of modems to a different carrier frequency retransmits the signal to the

plurality of modems for collision detection. Hansen teaches using frequency translation to retransmit a received signal to a plurality of modems for collision detection (col. 4 lines 16-57 esp. lines 50-57). Hansen discloses that the frequency translator is located on a head end of a coaxial cable (Fig. 1) while the applicant discloses that the frequency translator is located on a coaxial cable link. However, in a hybrid fiber/coax network, the optical distribution node can be viewed as a being the head end for the coaxial cable. Although it is not explicitly stated, it is implicit that Hansen does this as a way to detect if collisions have occurred within the coaxial link so that corrupted data may be retransmitted. It would have been obvious to one of ordinary skill in the art of coaxial links to modify Dapper to use Hansen's method of detecting collisions within a coaxial link.

10. Dapper in view of Hansen fails to teach a data interface coupled between the frequency translator and the data concentrator that determines whether the upstream, digital data is valid. Vanbuskirk teaches checking the validity of incoming data to a concentrator (col. 47 lines 2-6 and col. 52 line 16). Although Vanbuskirk does not specify that the data interface is coupled between the frequency translator and the data concentrator, it is obvious that the data interface must be located at a position before the data concentrator. Thus it is obvious that this data interface could be coupled between the frequency translator and the data concentrator, which would place the interface before the data concentrator. It would have been obvious to one of ordinary skill in the art of hybrid fiber/coax networks to modify Dapper's system to include Vanbuskirk's validity test of incoming data to the concentrator in order to ensure that only valid data is entering the concentrator.

11. Regarding claim 2, Dapper discloses that a portion of the upstream, digital data is transmitted over the at least one coaxial cable link on modulated carriers below 42 MHz (col. 124 lines 51-59).

12. Regarding claim 3, Dapper discloses that for downstream data "any number of modulation techniques may be used for transmission...the modulation techniques utilized and performed by RF modem...may include quadrature phase shift keying (QPSK), quadrature amplitude modulation (QAM), or other modulation techniques for providing the desired data rate" (col. 121 lines 27-34). Although this disclosure is for downstream data, it would be obvious that the same modulation techniques used for downstream transmission could be the same modulation techniques used for upstream transmission. Other modulation techniques include on-off keying which is well-known in the art. It would have been obvious to one of ordinary skill in the art of hybrid fiber/coax networks that the modulated carriers are modulated with the upstream, digital data using one of on-off keying, quadrature phase-shift keying and quadrature amplitude modulation.

13. Regarding claim 4, Dapper discloses that the upstream, digital data is carried on one of at least two modulated carriers (col. 124 lines 51-64 and col. 125 line 57-col. 126 line 1). Because there are multiple signals being sent in the frequency band, it would be obvious to modulate the upstream data on multiple carriers.

14. Regarding claim 6, Dapper discloses that the upstream, digital data comprises Ethernet packets (col. 95 lines 48-63). It is obvious that if Ethernet connections are used that the data could be Ethernet packets.

15. Regarding claim 9, Dapper discloses a receiver circuit coupled to the fiber optic link and the at least one coaxial cable link that receives downstream optical signals and converts the signals to electrical signals for transmission over the at least one coaxial cable link (col. 122 line 39-64 esp. 59-64).

16. Regarding claim 18, Dapper discloses an optical distribution node (col. 14 lines 22-25 and col. 120 lines 60-63) for a hybrid fiber coax network (col. 4 lines 58-59) comprising a laser transmitter coupled to the fiber optic link that transmits the upstream, digital data to the head end of the network (col. 27 lines 35-36); a data concentrator (combiner) coupled to provide the upstream, digital data to the laser (col. 27 lines 29-38 and Fig. 5 reference 408); a frequency translator (frequency shifter) for the coaxial link that receives the upstream, digital data modulated on a first carrier frequency from a plurality of modems and translated the upstream, digital data to a different carrier (col. 27 lines 115-25 and Fig. 5 reference 64); and a process performed at the frequency translator to ensure that the upstream, digital data is valid (col. 28 lines 32-46 esp. lines 44-46). It should be noted that valid data is broadly interpreted to mean any data which can be properly interpreted by the system. Thus "unacceptable modifications of the…upstream signal by frequency shifters" (col. 28 lines 44-46) is interpreted to mean data which is not valid.

17. Even though Dapper discloses the use of collision detection (col. 63 lines 15-21), Dapper does not disclose that the frequency translator that receives and translates the upstream, digital data from the plurality of modems to a different carrier frequency retransmits the signal to the plurality of modems for collision detection. Hansen teaches using frequency translation to retransmit a received signal to a plurality of modems for collision detection (col. 4 lines 16-57

esp. lines 50-57). Hansen discloses that the frequency translator is located on a head end of a coaxial cable (Fig. 1) while the applicant discloses that the frequency translator is located on a coaxial cable link. However, in a hybrid fiber/coax network, the optical distribution node can be viewed as a being the head end for the coaxial cable. Although it is not explicitly stated, it is implicit that Hansen does this as a way to detect if collisions have occurred within the coaxial link so that corrupted data may be retransmitted. It would have been obvious to one of ordinary skill in the art of coaxial links to modify Dapper to use Hansen's method of detecting collisions within a coaxial link.

18. Dapper in view of Hansen fails to teach a data interface coupled between the frequency translator and the data concentrator that determines whether the upstream, digital data is valid. Vanbuskirk teaches checking the validity of incoming data to a concentrator (col. 47 lines 2-6 and col. 52 line 16). Although Vanbuskirk does not specify that the data interface is coupled between the frequency translator and the data concentrator, it is obvious that the data interface must be located at a position before the data concentrator. Thus it is obvious that this data interface could be coupled between the frequency translator and the data concentrator, which would place the interface before the data concentrator. It would have been obvious to one of ordinary skill in the art of hybrid fiber/coax networks to modify Dapper's system to include Vanbuskirk's validity test of incoming data to the concentrator in order to ensure that only valid data is entering the concentrator.

19. Regarding claim 20, Dapper discloses that the upstream, digital data comprises Ethernet packets (col. 95 lines 48-63). It is obvious that if Ethernet connections are used that the data could be Ethernet packets.

20. Regarding claim 22, Dapper discloses that the frequency translator receives upstream, digital data on at least one additional carrier (col. 125 line 57-col. 126 line 1).

21. Regarding claim 23, Dapper discloses that the frequency translator receives the upstream, digital data modulated on a first carrier with a frequency that is below the frequency range for downstream transmissions (col. 124 lines 51-59), where downstream transmission frequencies are 54-725 MHz (col. 120 lines 39-40).

22. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dapper (USPN 6,282,683) in view of Hansen et al. (USPN 5,272,700) and Vanbuskirk el al. (USPN 5,469,545) as applied to claim 1 above, and further in view of Griesing (USPN 4,959,829).

23. Dapper in view of Hansen and Vanbuskirk discloses a system that has a plurality of modems that transmit collision detection signals when a collision is detected based on signals from the frequency translator (Hansen col. 4 lines 16-57 esp. 50-57). Dapper in view of Hansen and Vanbuskirk does not disclose that the collision detection signal is transmitted on a different modulated carrier. Griesing teaches transmitting the collision detection signal distinct from a receive or transmit signal in order to prevent the interpretation of one signal interfering with another (col. 3 lines 10-13). It is obvious that one way to separate the transmit or receive signal from the collision detection signal is to modulate the collision signal on a different carrier than the transmitted signals. It would have been obvious to one skilled in the art of hybrid fiber/coax networks to modulate the collision detection signal on a different modulated carrier in order to prevent the collision detection signal from being confused with another signal.

24. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dapper (USPN 6,282,683) in view of Hansen et al. (USPN 5,272,700) and Vanbuskirk el al. (USPN 5,469,545) as applied to claim 1 above, and further in view of Peyrovian (USPN 5,768,682)

25. Dapper in view of Hansen and Vanbuskirk does not disclose having at least a portion of the upstream, digital data transmitted over the plurality of coaxial cable links on modulated carriers above a cut-off frequency for downstream transmission. Peyrovian teaches having a portion of the upstream data transmitted on modulated carriers above a cut-off frequency for downstream transmission (col. 3 lines 25-42 esp. lines 36-43). Peyrovian does this because high frequency bands are less susceptible to noise than low frequency bands (col. 3 lines 44-53). It would have been obvious to one of ordinary skill in the art of hybrid fiber/coax networks to modulate a portion of the upstream data on carriers above a cut-off frequency for downstream transmission in order to make the upstream, digital data less susceptible to noise.

26. Claim 8 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dapper (USPN 6,282,683) in view of Hansen et al. (USPN 5,272,700) and Vanbuskirk el al. (USPN 5,469,545) as applied to claim 1 and 18 above, and further in view of Beveridge (USPN 5,469,495).

27. Dapper in view of Hansen and Vanbuskirk discloses that the laser transmitter transmits the upstream, digital data as a modulated carrier transmission (Dapper: col. 125 line 57-col. 126 line 1). Dapper in view of Hansen and Vanbuskirk does not disclose that the laser transmitter transmits the upstream, digital data as a base-band transmission. Beveridge teaches the use of transmitting an upstream, optical signal as a base-band transmission (col. 2 lines 10-20). Beveridge does this because a base-band signal "may be carried directly on a transmission line"

(col. 1 lines 55-56). It is implicit that carrying the base-band signal directly over a transmission line does not require extra mechanisms to modulate and demodulate the signal. Thus the added difficulties of modulation and demodulation are removed making it easier to transmit the signal. It would have been obvious to one of ordinary skill in the art of hybrid fiber/coax networks to modify Dapper in view of Hansen and Vanbuskirk's system to allow for base-band signals to travel over the optical link because sending base-band signals requires less mechanisms and so is simpler than sending band-pass signals.

28. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dapper (USPN 6,282,683) in view of Hansen et al. (USPN 5,272,700) and Vanbuskirk el al. (USPN 5,469,545) as applied to claim 18 above, and further in view of Hutchison (USPN 5,838,989).

29. Dapper in view of Hansen and Vanbuskirk does not specifically disclose that at least one media access unit coupled to the at least one coaxial cable link and the data concentrator are located in the at least one optical distribution node. Hutchison teaches the use of media access (attachment) units (MAU) to allow connection of two different mediums. By attaching an MAU between the media interfaces, the MAU allows data to travel over two different mediums (Fig. 1, Fig. 3, and col. 1 lines 29-41 and col. 1 line 60- col. 2 line 14). Although Hutchison does not describe attaching an MAU to the at least one coaxial cable link and the data concentrator, it would have been obvious to do so. By placing a MAU on the coaxial cable link, the modems attached to the link would be enabled to transmit data over the coax cable medium. By placing a MAU on the data concentrator, the optical distribution node would be enabled to transmit data received on the coax cable medium onto the optical fiber medium. It would have been obvious to one of ordinary skill in the art of optical distribution nodes to place media access units on the

interfaces to and from different mediums, namely on the coaxial cable links and the data concentrator.

30. Claim 10-12, 14, 17, 24, 25, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dapper (USPN 6,282,683) in view of Hansen et al.

31. Regarding claim 10, Dapper discloses a hybrid fiber coax network (col. 4 lines 58-59) comprising a head end (col. 4 line 59-col. 5 line 10); at least one optical distribution node coupled to the head end over at least one fiber optic link (col. 14 lines 22-25 and col. 120 lines 60-63); at least one coaxial cable link, coupled to the at least one optical distribution node, that receives upstream, digital data (col. 125 lines 9-10) from a plurality of modems (col. 125 lines 52-55); and wherein at least a portion of the upstream, digital data is transmitted over the at least one coaxial cable link on at least one modulated carrier below a frequency range for downstream transmission (col. 124 lines 51-59), where downstream transmission frequencies are 54-725 MHz (col. 120 lines 39-40).

32. Even though Dapper discloses the use of collision detection (col. 63 lines 15-21), Dapper does not disclose that the at least one optical distribution node includes circuitry for detecting collisions on the at least one coaxial cable link. Hansen teaches having the head end of a coaxial link have circuitry to detect collisions on the at least one coaxial cable link (col. 4 lines 16-57 esp. lines 50-57). Hansen discloses that the circuitry is located on a head end of a coaxial cable (Fig. 1) while the applicant discloses that the circuitry is located on a coaxial cable link of an optical distribution node. However, in a hybrid fiber/coax network, the optical distribution node can be viewed as a being the head end for the coaxial cable link. Although it is not explicitly stated, it is implicit that Hansen does this as a way to detect if collisions have occurred within the

coaxial link so that corrupted data may be retransmitted. It would have been obvious to one of ordinary skill in the art of coaxial links to modify Dapper to use Hansen's method of detecting collisions within a coaxial link.

33. Regarding claim 11, Dapper discloses that for downstream data "any number of modulation techniques may be used for transmission…the modulation techniques utilized and performed by RF modem…may include quadrature phase shift keying (QPSK), quadrature amplitude modulation (QAM), or other modulation techniques for providing the desired data rate" (col. 121 lines 27-34). Although this disclosure is for downstream data, it would be obvious that the same modulation techniques used for downstream transmission could be the same modulation techniques used for upstream transmission. Other modulation techniques include on-off keying which is well-known in the art. It would have been obvious to one of ordinary skill in the art of hybrid fiber/coax networks that the modulated carriers are modulated with the upstream, digital data using one of on-off keying, quadrature phase-shift keying and quadrature amplitude modulation.

34. Regarding claim 12, Dapper discloses that the upstream, digital data is carried on one of at least two modulated carriers (col. 124 lines 51-64 and col. 125 line 57-col. 126 line 1). Because there are multiple signals being sent in the frequency band, it would be obvious to modulate the upstream data on multiple carriers.

35. Regarding claim 14, Dapper discloses that the upstream, digital data comprises Ethernet packets (col. 95 lines 48-63). It is obvious that if Ethernet connections are used that the data could be Ethernet packets.

36. Regarding claim 17, Dapper discloses a receiver circuit coupled to the fiber optic link and the at least one coaxial cable link that receives downstream optical signals and converts the signals to electrical signals for transmission over the at least one coaxial cable link (col. 122 line 39-64 esp. 59-64).

37. Regarding claim 24, Dapper discloses a method for processing data in a return path of a hybrid fiber/coax network comprising receiving, on a first coaxial cable, upstream, digital data modulated on a first carrier (col. 124 lines 59-63); translating (shifting) the frequency of the first carrier to a second frequency (col. 125 line 57-col. 126 line 1); retransmitting the upstream, digital data modulated on the carrier with the second frequency (col. 125 line 57-col. 126 line 1); checking for collision detection signals (col. 63 lines 15-27); concentrating (combining) the upstream, digital data with upstream, digital data from other coaxial cables (col. 27 lines 29-38); and transmitting the concentrated, upstream, digital data to the head end (col. 27 line 35-36).

38. Even though Dapper discloses the use of collision detection (col. 63 lines 15-21), Dapper does not disclose collision detection is checked for based on the retransmitted upstream, digital data. Hansen teaches using frequency translation to retransmit a received, upstream signal to a plurality of modems for collision detection (col. 4 lines 16-57 esp. lines 50-57). Although it is not explicitly stated, it is implicit that Hansen does this as a way to detect if collisions have occurred so that corrupted data may be retransmitted. It would have been obvious to one of ordinary skill in the art of coaxial links to modify Dapper to use Hansen's method of detecting collisions using retransmitted upstream, digital data.

39. Regarding claim 25, Dapper discloses receiving digital data on a first carrier below a frequency range for downstream transmission (col. 124 lines 51-59), where downstream frequencies are 54-725 Mhz (col. 120 lines 39-40).

40. Regarding claim 29, Dapper discloses that the upstream, digital data comprises Ethernet packets on a modulated carrier (col. 95 lines 48-63). It is obvious that if Ethernet connections are used that the data could be Ethernet packets.

41. Claim 13 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dapper (USPN 6,282,683) in view of Hansen et al. (USPN 5,272,700) as applied to claim 10 and 24 above, and further in view of Griesing (USPN 4,959,829).

42. Regarding claim 13, Dapper in view of Hansen and Vanbuskirk discloses a system that has a plurality of modems that transmit collision detection signals when a collision is detected based on signals from the frequency translator (Hansen col. 4 lines 16-57 esp. 50-57). Dapper in view of Hansen does not disclose that the collision detection signal is transmitted on a different modulated carrier. Griesing teaches transmitting the collision detection signal distinct from a receive or transmit signal in order to prevent the interpretation of one signal interfering with another (col. 3 lines 10-13). It is obvious that one way to separate the transmit or receive signal from the collision detection signal is to modulate the collision signal on a different carrier than the transmitted signals. It would have been obvious to one skilled in the art of hybrid fiber/coax networks to modulate the collision detection signal on a different modulated carrier in order to prevent the collision detection signal from being confused with another signal.

43. Regarding claim 27, it is also obvious that if a collision detection signal is transmitted on a different carrier that that carrier should be monitored to see if a collision has occurred. It would

have been obvious to one skilled in the art of hybrid fiber/coax networks to monitor a third frequency for collision detection signals.

44. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dapper (USPN 6,282,683) in view of Hansen et al. (USPN 5,272,700) as applied to claim 10 above, and further in view of Peyrovian (USPN 5,768,682)

45. Dapper in view of Hansen does not disclose having at least a portion of the upstream, digital data transmitted over the plurality of coaxial cable links on modulated carriers above a cut-off frequency for downstream transmission. Peyrovian teaches having a portion of the upstream data transmitted on modulated carriers above a cut-off frequency for downstream transmission (col. 3 lines 25-42 esp. lines 36-43). Peyrovian does this because high frequency bands are less susceptible to noise than low frequency bands (col. 3 lines 44-53). It would have been obvious to one of ordinary skill in the art of hybrid fiber/coax networks to modulate a portion of the upstream data on carriers above a cut-off frequency for downstream transmission in order to make the upstream, digital data less susceptible to noise.

46. Claim 16 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dapper (USPN 6,282,683) in view of Hansen et al. (USPN 5,272,700) as applied to claim 10 and 24 above, and further in view of Beveridge (USPN 5,469,495).

47. Dapper in view of Hansen discloses that the laser transmitter transmits the upstream, digital data as a modulated carrier transmission (Dapper: col. 125 line 57-col. 126 line 1). Dapper in view of Hansen does not disclose that the laser transmitter transmits the upstream, digital data as a base-band transmission. Beveridge teaches the use of transmitting an upstream, optical signal as a base-band transmission (col. 2 lines 10-20). Beveridge does this because a base-band

signal "may be carried directly on a transmission line" (col. 1 lines 55-56). It is implicit that carrying the base-band signal directly on a transmission line does not require extra mechanisms to modulate and demodulate the signal. Thus the added difficulties of modulation and demodulation are removed making it easier to transmit the signal. It would have been obvious to one of ordinary skill in the art of hybrid fiber/coax networks to modify Dapper in view of Hansen's system to allow for base-band signals to travel over the optical link because sending base-band signals requires less mechanisms and so is simpler than sending band-pass signals.

48. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dapper (USPN 6,282,683) in view of Hansen et al. (USPN 5,272,700) as applied to claim 24 above, and further in view of Peyrovian (USPN 5,768,682)

49. Dapper in view of Hansen does not disclose translating the frequency of the first carrier to a second frequency below the frequency used for downstream transmission. Peyrovian teaches translating the frequency of the first carrier to a second frequency below the frequency used for downstream transmission (col. 8 lines 9-18). Peyrovian does this because "there may be some services for which it is desirable to modulate subscriber-generated upstream information via a carrier to the low frequency band of 5-40 MHz" (col. 4 lines 11-14). It would have been obvious to one skilled in the art of hybrid fiber/coax networks to translate the frequency of the first carrier to a second frequency below the frequency used for downstream transmission in order to allow any services for which it is desirable to have the data modulated below the downstream transmission band to take advantage of the data.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Ryman whose telephone number is (703)305-6970. The examiner can normally be reached on Mon.-Fri. 7:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (703)308-6602. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-6743 for regular communications and (703)308-9051 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.

Daniel J. Ryman
Examiner
Art Unit 2665

DJR
Daniel J. Ryman
July 1, 2002

HUY D. VU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600